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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,550	11/19/2001	Shin-Ichi Shimizu	215279US3PCT	8600

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C. IRVIN MCCLELLAND  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

DOUGLAS, JOHN CHRISTOPHER

ART UNIT PAPER NUMBER

1764

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/926,550

Applicant(s)

SHIMIZU ET AL.

Examiner

John C. Douglas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/21/03</u> . | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/05/2006 has been entered.

### ***Response to Amendment***

2. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment:

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friday et al. (US 6,183,627) in view of Gandman (US 5944961).

The Friday reference discloses a process for treating a hydrocarbon feed such as a heavy crude oil. The process comprises passing the heavy oil to a distillation zone to separate the oil into a distillate stream and a heavy fraction. The distillate, which contains light, middle range, and heavy distillates, would necessarily contain the claimed gas oil, kerosene, and naphtha fractions. Since the distillation zone can contain at least two separate vessels with the ultimate pressure being subatmospheric (i.e., vacuum), the first vessel can be considered

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to be the claimed pre-separation apparatus and the second can be considered to be the claimed main separation apparatus. The distillate stream is then passed to a hydrotreating zone as a combined stream and is subjected to hydrotreating reactions including desulfurization and hydrogenation. The heavy fraction recovered from the bottom of the distillation zone is passed to a thermal cracking zone to produce thermally cracked product. The thermally cracked product is then returned to the distillation zone. See column 4, line 62 through column 6, line 37 and the figure.

The Friday reference does not disclose the step of thermally cracking the heavy oil content obtained directly from the bottom of the distilling section, does not disclose the relative amount of heavy oil separated as in claim 3, does not disclose that the heavy oil separated in the distillation step contains substantially neither gas oil nor vacuum gas oil content, does not disclose that there is no heavy oil contained in the thermal cracking residue, and does not disclose a step of removing the residues of pitch or coke from the thermal cracking section.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to eliminate the solvent deasphalting step of Friday and thus directly pass the heavy oil from the distillation section to the thermal cracker because the elimination of a step along with its function has been held to be prima facie obvious. *Ex parte Wu*, 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989)

Additionally, it would have been obvious to eliminate the solvent deasphalting step of Friday because the removal of asphaltenes permits the

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operation of the cracker at more severe conditions and higher conversion. If one could put up with lesser conversion with reduced costs from the elimination of the deasphalting step, one would be motivated to eliminate the deasphalting step. Also, by eliminating this step, residues of coke and pitch would be produced.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Friday reference by separating heavy oil in the relative amounts claimed because the Friday reference does not disclose the boiling range for the heavy oil. Therefore, one having ordinary skill in the art would recovery any amount of heavy oil that would provide the required boiling range material for the cracking step.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Friday by assuring that the heavy oil separated in the distillation step does not contain gas oil because such gas oil fractions are valuable and would not necessarily benefit from being thermally cracked.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Friday reference by assuring that none of the heavy oil is contained in the thermal cracking residue because 100 percent conversion will result in the maximum production of the lighter cracked oil product.

Also, Gandman discloses of step of injecting a liquid solution in order to remove coke from a thermal cracking furnace (see Gandman, column 3, line 65 – column 4, line 3).

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Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Friday to include of step of injecting a liquid solution in order to remove coke from a thermal cracking furnace.

### ***Response to Arguments***

3. The arguments presented in response filed on 6/05/2006 are believed to be addressed in the rejection described above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCD

8/7/2006



Glenn Caidarola  
Supervisory Patent Examiner  
Technology Center 1700